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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

May 20, 2005

Ms. Susan Roth
Roth Consulting
6236 27th Avenue NE
Seattle, WA 98115-7114

CERTIFIED MAIL
7004 0750 0001 8363 1513

Dear Ms. Roth:

Re: Comments to the **Draft Feasibility Study Work Plan**:
Terminal 91 Tank Farm Site *Agreed Order No. DE 98HW-N108*

Attached are the formal comments by the Washington State Department of Ecology (Ecology), on the Draft Feasibility Study (FS) Work Plan for the Port of Seattle's (POS) Terminal 91 facility. The draft FS work plan was received by Ecology on April 15, 2005. Please respond to the comments and finalize the FS work plan in accordance with the schedule specified in Figure 4 of the document. Based on the schedule proposed, a final FS workplan should either be sent to Ecology within 2 weeks after you have received these comments, or sent after Ecology and the POS have resolved outstanding issues and agreed on a delivery date for the final document. It is Ecology's understanding that finalizing this workplan will not affect the schedule for either the Monitored Natural Attenuation Evaluation task or the LNAPL Pilot Recovery Test, which should follow the implementation schedule outlined in Figure 4. If this is not the case, this will need to be discussed as soon as possible.

If you have any comments, or need to schedule a new delivery date for the revised FS workplan, please contact me at the Department of Ecology Northwest Regional Office by phone at (425) 649-7280 no later then May 25, 2005.

Sincerely,

Galen H. Tritt
Hazardous Waste and Toxics Reduction Program

GT:sd

Enclosure

cc: Julie Sellick, Ecology-NWRO
Ed Jones, Ecology-NWRO
Greg Caron, Ecology-CRO
Damon Delistraty, Ecology-ERO
Jan Palumbo, EPA Region 10
Port of Seattle, T-91 HZW File 6.2

Ms. Susan Roth
May 20, 2005

COMMENTS

General Comments

1. *Please clarify all cleanup levels which need to be calculated. In particular, in addition to groundwater cleanup levels, it appears that cleanup levels need to be calculated for other media. These include indoor air, surface water, sediment, and soil. To some extent, this is accomplished for indoor air (p. 25, para 3), surface water (p. 25, para 5), and sediment (p. 26, para 1, bullet 3), but not for soil.*

2. *Although a terrestrial ecological risk assessment is excluded per WAC 173-340-7491[1][c][i] (p. 23, para 2), it appears that an aquatic ecological risk assessment (including biota in surface water and marine sediments) should be performed.*

3. *Keep in mind this is only the FS work plan phase. At times, the tone of text tends to be leading and narrowly focused. For instance, it's clear the POS is focusing on MNA in the work plan. We would agree that MNA needs to be explored. However, the appropriate place to argue the case for MNA is in the FS, after the data gaps have been addressed*

4. *Conceptual site model: Pathway analysis and exposure routes are not fully complete (see general comment 5 & 6 below).*

5. *Soil; appears to be a major data gap that has not been addressed. The document indicates the human health soil exposure pathways are not complete. This is not entirely true. It also says this pathway will be addressed via groundwater. It needs to be explicitly addressed: Cleanup levels for soil must be developed (see specific comment section). For instance, we need to establish cleanup levels to determine the feasibility of cleanup alternatives based upon proposed land uses. The soils may be acting as a source of groundwater contamination. WAC 173-340-370(7)(a) requires that "source control...has been conducted to the maximum extent practicable." Now that the tank farm has been demolished the timing appears right to address this.*

6. *The groundwater to sediment pathway needs to be included regardless of how contamination came to be located in sediments. The POS is owner/operator. They are a PLP. The fact they may not have caused it to be located there is not relevant under MTCA, and needs to be discussed. There are two different issues here. The past and current potential contamination of sediments. Even though Ecology is not asking the POS to sample and clean up sediment contamination that has come from multiple upland sources, we are asking the POS to evaluate what the risks to the environment are from the current discharge of groundwater to surface water, and therefore the sediments.*

7. *Ecology did not offer specific comments on the LNAPL Pilot Recovery Test; however, it is our understanding that performance standards will be met. The Implementation*

schedule on Figure 4 was not supported well with the text in the work plan. For instance, there is not enough detail to understand why it takes 4 weeks for task #19, when it only involves equipment rental and site preparation. Without detail, this would seem to be about 3 weeks too long?

SPECIFIC COMMENTS

2.1.2 Approach to Addressing the Data Gap

8. *(p. 4, para 3) It was stated that the revised Ecology guidance will be* 'reviewed for it's applicability to this site.' *This is the guidance that should take precedence over either the EPA or the Wiedemeier documents that you referenced, as this is the guidance that the report on the MNA evaluation will be assessed against by the Ecology. The work plan wording should be changed. Both of the other documents can be used as supporting documentation but the Ecology guidance should be the main document followed. If for some reason the guidance does not fully address the situation at the site, then the POS representatives should discuss this with Ecology, prior to performing the MNA evaluation and producing the report.*

2.2.1 Description of the Data Gap

9. (p. 4, para 4) "Recent work at the Site (Aspect 2004) has defined the flow of groundwater from the tank farm area downgradient towards the piers and ultimately into surface water." *This statement is incorrect. A percentage of the groundwater flow appears to be moving parallel to the bulkhead east to west. Until additional information from the new monitoring wells can be worked into the site model to further define the flow of groundwater, this is an incorrect statement and will need to be revised. Please address the case for or against this potential component of the groundwater flow.*

10. (p. 4, para 5) *Ecology does not agree with your statement* that 'then the case can be made that cleanup standard are being met.' *Based on the data to present, the cleanup standards are not being met, nor have background level adjustments been established. Please re-word your statement.*

11. (p. 4, para 5) Related to the potential for westerly groundwater flow noted above, the reference to POC wells in this section is narrow in scope (refers only to POC wells near the head of Piers 90 & 91). At some point in the FS, the POS will need to identify <u>all</u> the wells which will be used to determine compliance with cleanup standards. Please keep in mind that the standard point of compliance is throughout the site per WAC 173-340-720(8)(b) until a conditional POC has been agreed upon.

3.1 Sampling and Analysis Plan Preparation

12. (p.6, para 4, bullet 2) "Monitoring flowpaths outward from the Tank Farm Lease Parcel toward both Piers 90 and 91." *This should include wording to account for any of the "flowpath" that is moving to the West.*

3.2 Data Collection

13. (p.7, para 2) "If monitoring at the POC wells indicates that one or more COCs exceed preliminary screening levels, it may be necessary to evaluate whether natural attenuation is occurring downgradient of the potential POC wells (i.e., between the wells and the locations where groundwater ultimately discharges into surface water)." *This can be discussed as you have stated, however based on the current data and site model, making a case for additional natural attenuation occurring down gradient of the current locations due to mixing zones, and the relatively short distance from the monitoring wells to the end of the piers, makes this possibility unlikely to be agreed to by Ecology.*

5.2 Development of Cleanup Standards

14. ***Section 5.2.1.1*** *(p. 22, para 3) Although we do not disagree with the approach and potential for exposure, the future excavation and underground utility worker exposure pathway should be retained. If institutional controls and standard health and safety procedures are to be relied upon, the PLPs should expand the discussion/provide greater detail in the FS.*

15. ***Section 5.2.1.1*** *(p. 22, para 5) The soil to groundwater pathway needs to be retained. Cleanup standards will need to be developed in section 5.2. The basis for the work plan's statement that* "the soil to groundwater pathway is not expected to be a significant ongoing concern" *does not reference any supporting documentation that will be used in the FS report.*

16. ***Section 5.2.1.2*** *(p. 23, para 4) The groundwater to sediment pathway is complete and should be evaluated. The argument that this pathway be excluded from consideration (due to a wide variety of sources contributing contaminants to sediments), is irrelevant to impacted aquatic receptors and inconsistent with total pathway analysis (i.e., retention of groundwater to surface water but exclusion of groundwater to sediment). That is, with regard to the latter, the same multiple source argument would apply to the groundwater to surface water pathway, yet that pathway is appropriately retained.*

17. ***Section 5.2.2*** *(p. 24, para 3) Re: the "frequency that any constituent occurs in groundwater," why not include other media besides groundwater (e.g., soil, surface water, sediment)? Will data be collected in these other media? Also, will soil vapor data be collected?*

18. ***Section 5.2.2*** *(p. 24, para 4) Re: a <10% frequency criterion for eliminating contaminants, EPA's Risk Assessment Guidance for Superfund (RAGS) suggests 5% frequency, which appears to be more conventional. Please provide more details on the "statistical evaluation of the data" that will be performed for "high concentration" data. And how is "high concentration" defined?*

19. ***Section 5.2.3*** *(p. 24, para 6) In addition to the "groundwater to indoor air" and the "groundwater to surface water" pathways, several other pathways appear complete. These include soil to indoor air, soil to groundwater, and groundwater to sediment. Soil to indoor air is noted as a complete pathway (p. 22, para 5 and in Figure 3). Soil to groundwater is noted in Figure 3 and can be addressed via MTCA's 3 phase model (WAC 173-340-747[4]). Re: Groundwater to sediment, see comment for p. 23, para 5.*

20. ***Section 5.2.3*** *(p. 25, para 1) In addition to protection of indoor air and protection of surface water, groundwater cleanup levels should also be based on protection of sediment. Note that the final groundwater cleanup level should be based on the pathway yielding the lowest groundwater concentration.*

21. ***Section 5.2.3*** *(p. 25, para 4)* The *text on p. 22 (para 5), as well as Figure 3, indicate that the soil to indoor air pathway is complete and will be retained for evaluation in the FS. Please correct this inconsistency and add the soil to indoor air pathway discussion.*

22. ***Section 5.2.3*** *(p. 25, para 4) The text goes on to say that risk-based <u>soil</u> CULs will <u>not</u> be derived for the protection of indoor air. The Port says this is because areas of soil contamination coincide with areas of LNAPL. That may be, but the FS needs to decide if existing soil contamination is a threat to workers or residents in the future (assuming that future residential development of the property is possible) once the LNAPL has dissipated. If it isn't, that is fine, but if it is, but it's only Method B CULs that are exceeded, then it can be evaluated whether it is better/cheaper to leave it in place and implement institutional controls, or do something different about it.*

23. ***Section 5.2.3*** *(p. 25, para 4) The text states that "Vapors from the LNAPL plume will be addressed through development of groundwater-to-indoor air cleanup levels." We agree with this approach, but how do you plan to do this? Please provide more detail.*

24. ***Section 5.2.3*** *(p. 25, para 4) It is worth pointing out that there may some advantage to defining cleanup standards now, even if the POS does not have the future land use pinned down yet. The POS will need a baseline of cleanup standards to use to evaluate the costs of cleanup alternatives based on proposed land use. The POS should provide a detailed explanation of the land use proposal timelines and decision-making processes. Their explanation should be detailed enough so that site development processes and milestones are documented within the FS for public review. Ecology may consider the FS an "important milestone in the investigation*

and cleanup process," as defined in section 2.0 of the Public Participation Plan and public notice the draft FS report. If this is the case, it will be important for the public to know how the FS work is integrated with the POS's North Bay development plans for the site.

25. ***Section 5.2.3*** (p. 25, para 5) *Note that surface water cleanup levels will also define groundwater cleanup levels, since dilution of groundwater is not allowed when protecting surface water (WAC 173-340-730[6][b] and -720[8][d][i]).*

26. ***Section 5.2.3*** *(p. 26, para 1, bullet 3) Please include the groundwater to sediment pathway explicitly and cite the Sediment Management Standards (WAC 173-204). (Note: Groundwater, surface water, and sediment are all directly interconnected.)*

27. ***Section 5.2.3*** (p. 26, para 3) *Background levels for metals are discussed here but without any detail as to which monitoring well(s) will be included. Will data be used from monitoring well(s) on site or off site? You can use the approach discussed here, but unless there is agreement on the monitoring wells that will be used in your model, then Ecology will not accept the background levels you present. Please give more detail on how background levels are expected to be developed.*

28. ***Section 5.2.4*** (p. 26, para 3*) Remove the limiting reference to "*shallow*" groundwater. The reference in the context of the discussion is understood, but all groundwater must meet cleanup standards, not just the shallow groundwater.*

29. ***Section 5.2.4*** (p. 26, para 4) *The discussion should not limit POC wells to areas downgradient of the source. In general, cleanup levels apply to both downgradient and upgradient/source wells. If this discussion refers exclusively to the groundwater/surface water (or groundwater/sediment) pathway, then clarify that in the discussion.*

30. ***(Figure 3)*** *Please add a "Sediment" box under "*Exposure Medium*" with linkages to groundwater and surface water.*